

weight selected by the applicant or included in the loading instructions; and

(2) Not less than—

(i) The lowest weight selected by the applicant;

(ii) The design minimum weight (the lowest weight at which compliance with each applicable structural loading condition of this part is shown); or

(iii) The lowest weight at which compliance with each applicable flight requirement of this part is shown.

(c) *Total weight with jettisonable external load.* A total weight for the rotorcraft with a jettisonable external load attached that is greater than the maximum weight established under paragraph (a) of this section may be established for any rotorcraft-load combination if—

(1) The rotorcraft-load combination does not include human external cargo,

(2) Structural component approval for external load operations under either § 27.865 or under equivalent operational standards is obtained,

(3) The portion of the total weight that is greater than the maximum weight established under paragraph (a) of this section is made up only of the weight of all or part of the jettisonable external load,

(4) Structural components of the rotorcraft are shown to comply with the applicable structural requirements of this part under the increased loads and stresses caused by the weight increase over that established under paragraph (a) of this section, and

(5) Operation of the rotorcraft at a total weight greater than the maximum certificated weight established under paragraph (a) of this section is limited by appropriate operating limitations under § 27.865(a) and (d) of this part.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Doc. No. 5074, 29 FR 15695, Nov. 29, 1964, as amended by Amdt. 27-11, 41 FR 55468, Dec. 20, 1976; Amdt. 25-42, 43 FR 2324, Jan. 16, 1978; Amdt. 27-36, 64 FR 43019, Aug. 6, 1999; Amdt. 27-44, 73 FR 10998, Feb. 29, 2008; 73 FR 33876, June 16, 2008]

#### § 27.27 Center of gravity limits.

The extreme forward and aft centers of gravity and, where critical, the extreme lateral centers of gravity must be established for each weight established under § 27.25. Such an extreme may not lie beyond—

(a) The extremes selected by the applicant;

(b) The extremes within which the structure is proven; or

(c) The extremes within which compliance with the applicable flight requirements is shown.

[Amdt. 27-2, 33 FR 962, Jan. 26, 1968]

#### § 27.29 Empty weight and corresponding center of gravity.

(a) The empty weight and corresponding center of gravity must be determined by weighing the rotorcraft without the crew and payload, but with—

(1) Fixed ballast;

(2) Unusable fuel; and

(3) Full operating fluids, including—

(i) Oil;

(ii) Hydraulic fluid; and

(iii) Other fluids required for normal operation of rotorcraft systems, except water intended for injection in the engines.

(b) The condition of the rotorcraft at the time of determining empty weight must be one that is well defined and can be easily repeated, particularly with respect to the weights of fuel, oil, coolant, and installed equipment.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Doc. No. 5074, 29 FR 15695, Nov. 24, 1964, as amended by Amdt. 27-14, 43 FR 2324, Jan. 16, 1978]

#### § 27.31 Removable ballast.

Removable ballast may be used in showing compliance with the flight requirements of this subpart.

#### § 27.33 Main rotor speed and pitch limits.

(a) *Main rotor speed limits.* A range of main rotor speeds must be established that—